Jorge A. Sanchez

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EDUCATION

Arizona State University, Tempe AZ

Doctor of Philosophy, Astrophysics, Expected Spring 2027 Advisors: Jenny Patience, Michael Line <u>The University of Chicago, Chicago IL</u> Bachelor of Science in Astronomy and Astrophysics, May 2021

CURRENT RESEARCH

Advised by: Jenny Patience

Investigating formation pathways of Brown Dwarfs using low resolution spaced based telescopes Advised by: Michael Line

Using Bayesian retrieval techniques to constrain abundances in the atmospheres of Hot Jupiter's with high resolution cross correlation spectroscopy

RESEARCH EXPERIENCE

Undergraduate Researcher, Bean Exoplanet Group University of Chicago, Jun 2020 – August 2021

- Developed python scripts for Data Analysis for the spectrograph MAROON-X
- Designed and created an Exposure Time calculator and graphical interface for observers using the instrument using the data visualization library Bokeh

Undergraduate Researcher, COOL-LAMPS

University of Chicago, Jan 2020 - August 2021

- Collaborated with a group of undergraduates on identifying evidence of gravitational lensing located in astronomical surveys
- Learned how to fit analytical functions onto point and extended sources using the parametric fitting code, GLAFIT
- Calibrated 1-D spectra in both wavelength and flux for redshift characterization and spectral line identification using toolkits built within IRAF

AWARDS AND HONORS

College Research Fellows for Undergraduates 2020 Metcalf Undergraduate Research Award 2018, 2020 Odyssey Scholar 2016 Questbridge Scholarship 2016

PUBLICATIONS (* Denotes First Author Publications)

- *Sanchez et al. 2024A, *High Resolution Cross Correlation Spectroscopy of an Ultra Hot Jupiter*, In Prep
- *Sanchez, et al. 2024B, Investigating Formation Pathways Through Abundance Measurements of Benchmark Late T/ Early Y Binary Systems, In Prep
- Smith, P., and co-authors including **Sanchez**, **Jorge A**., *A Combined Ground-based and JWST Atmospheric Retrieval Analysis: Both IGRINS and NIRSpec* Agree The Atmosphere of WASP-77A b is Metal-Poor; (accepted in ApJ)
- Cerny, W., and co-authors including **Sanchez**, **Jorge A**., *Precise Photometric Measurements from a 1903 Photographic Plate Using a Commercial Scanner, (arXiv:* 2101.03699, accepted in ApJ).
- Khullar, G., and co-authors including **Sanchez**, **Jorge A.**, *COOL-LAMPS I. An Extraordinarily Bright Lensed Galaxy at Redshift 5.04*. Department of Astronomy and Astrophysics at the University of Chicago, (*arXiv: 2011.06601, accepted in ApJ*).

TALKS AND POSTER PRESENTAIONS

- Investigating Formation Pathways Through Abundances Measurements of Late T Early Y Binary Systems, **Talk**, AAS 241, Seattle, Washington
- Updates on large IGRINS -GS survey aimed at characterizing Hot Jupiter Day Side Hemispheres, **Talk**, Thinkshop 2022: High Resolution Spectroscopy for Exoplanet Atmospheres, Potsdam, Germany
- Investigating Formation Pathways Through Abundances Measurements of Late T Early Y Binary Systems, **Poster** at Cool Stars 21, Toulouse, France
- *Combined High Low Resolution Retrieval on a Canonical Hot Jupiter,* Poster at Exoplanets IV, Las Vegas
- Sanchez, Jorge A., Seifahrt, A., Bean, J., Kasper, D., *Measuring Radial Velocities with MAROON-X*, University of Chicago. *Talk*, AAS 237

SELECTED PROPOSALS

- *Getting the Full Picture:* Building a 3D map of ultra-hot Jupiter day sides through post eclipse observations. GEMINI South Observatory (IGRINS). PI.14 hours.
- Precision Abundances of T Dwarf Companions with Stellar/Substellar Hosts: An Investigation of Formation Pathways. Keck Observatory (OSIRIS). PI.1 night
- Tracing the Day-Night Structure of WASP-121b with Multi- Phase High-Resolution Spectroscopy. GEMINI South Observatory (IGRINS). Co-Investigator. PI: Emily Rauscher. 12 hours

OUTREACH

Sundial: Early Start Facilitator, ASU Tempe Campus, Summer 2022-Present

- Engaged with incoming freshman through labs and STEM related activities
- · Led workshops and courses on physical sciences and coding fundamentals

Teen Volunteer, Adler Planetarium Chicago IL, March 2016 – March 2018

- · Facilitated volunteers with youth overnight events and guided experiments with students
- Guided visitors of the museum through explanations on exhibits and observations